

# Chapter 5

## Nutritional Care and Support for Pregnant and Lactating Women Living with HIV/AIDS

### 5.0 Introduction

Pregnancy and lactation are specific lifecycle periods that demand additional energy and nutrients for adequate gestational weight gain, growth and development of the foetus and for milk production related to infant feeding. The body gives the nutrient supply required to support the foetus and for breast milk production takes precedent in the pregnant woman over maternal nutritional needs. Pregnant and lactating women infected with HIV therefore require additional food to maintain their health and nutritional status as well as to support optimal foetal growth.

Counsel pregnant and lactating women:

- To know their HIV status. If they are confirmed as HIV-infected, to gather correct information on the need to use comprehensive PMTCT services;
- To seek early and periodic antenatal and postnatal care, and deliver in a health facility;
- Regarding their decision on the mode of infant feeding if HIV-infected; and
- To practice safer sex to avoid re-infection with new strains during pregnancy or lactation, which increases the risk of HIV transmission to the baby.

### 5.1 Nutritional Care for Women Infected with HIV

The following issues are pertinent to the nutritional care and support of women.

- Foetal growth and lactation impose high nutritional demands on the mother.
- HIV infection and related OIs impose additional energy and nutrient needs.
- The nutritional status of an HIV-infected woman before, during and after pregnancy may influence her own health and the risk of transmitting HIV to her infant.
- Pregnancy and HIV infection worsen nutritional deficits and increase vulnerability to several health dangers that are associated with pregnancy, for example:
  - HIV-infected pregnant and lactating women have a higher risk of malnutrition and mortality.
  - Anaemic pregnant women who are HIV-infected are six times more likely to die in the year after delivery than a woman with adequate iron, and also more likely to transmit HIV infection to their infant.
- Malnourished, lactating mothers may have difficulty producing enough breast milk.

Nutritional care and support for HIV-infected women should be an integral part of antenatal and post-natal services and of PMTCT programs. Aim to support women to meet the additional energy and nutrient requirements of pregnancy/lactation, and those further imposed by HIV/AIDS.

## 5.2 Nutritional Requirements of HIV-infected Pregnant and Lactating Women

### Daily Energy Requirements

Healthy pregnant women require 13% more energy (290 Kcal) than women who are not pregnant. If they have multiple pregnancies the requirement is increased by 15% (i.e. additional 320 kcal per day). Lactation demands an additional 20% (or 500 kcal) energy.

	Average energy intake	Additional energy required for pregnancy/ lactation	Additional energy requirements of HIV	Total energy intake
<b>Pregnant</b>				
Un -infected Pregnant	2140	280	0	2420
Asymptomatic	2140	280	210	2630
Early symptomatic	2140	280	430	2850
Symptomatic	2140	280	640	3060
<b>Lactating</b>				
Un -infected lactating	2140	500	0	2640
Asymptomatic	2140	500	210	2850
Early symptomatic	2140	500	430	3070
Symptomatic	2140	500	640	3280
<b>Woman not breastfeeding</b>				
Un -infected woman	2140	0	0	2140
Asymptomatic	2140	0	210	2350
Early symptomatic	2140	0	430	2570
Symptomatic	2140	0	640	2780

Adapted from FANTA, 2004

**Table 5.1: Energy Requirements per Day of a 28-Year-Old HIV-Infected Women under Different Physiological States**

These additional energy and nutrient needs lead to significantly higher food requirements. Almost one additional meal is required daily to meet the extra nutrient demands of pregnancy, lactation and HIV infection (see Chapter 3).

Provide micronutrient-fortified food supplement providing not less than 40% of their daily caloric requirement to: 1) Pregnant, HIV-infected women who do not gain weight for 2 to 3 months, especially in the second and third trimester, or have a BMI < 18.5 kg/m<sup>2</sup> and 2) Women who are breastfeeding exclusively the first six months after delivery and have a BMI <18.5 kg/m<sup>2</sup>. Or, suggest an appropriate Multiple Micronutrients Supplement and food ration to meet 40% of caloric needs.

### Daily Protein Requirements

- Daily recommended protein intake is 1 g/kg body weight in healthy normal women.
- Non HIV-infected, healthy, pregnant and lactating women require an additional 6 g/day and 16 g/day of protein respectively.

Additional protein is reduced to 12 g/day for lactating mothers after the sixth month and to 11 g/day after the 12<sup>th</sup> month.

The protein should contain the entire range of essential amino acids. This requires consumption of a variety of plant source foods, and preferably a mixture of plant and animal source foods (see Chapter 4).

### Micronutrient Requirements

An adequate intake of vitamins and minerals is crucial for pregnant and lactating mothers.

The government recommends the same micronutrient interventions for HIV-infected pregnant and new mothers as for uninfected women:

- Consume large quantities of vegetables and fruits; use fortified foods and nutrient-dense foods to meet micronutrient needs during and after pregnancy.
  - Recommend and assist the women to choose foods rich in both formed vitamin A and readily convertible pro-vitamin A;  $\beta$ -carotene rich foods such as coloured fruits; and vegetables that present a sound option in the control of VAD.
- Daily supplementation with 60 mg of elemental iron and 400  $\mu$ g of folic acid for 6 months during pregnancy. In treatment of severe anaemia (Hb <7.0 g/dL), this dose is taken twice daily (120 mg of iron).
  - Advise pregnant women to a) adhere to intermittent presumptive treatment of malaria in the second and third trimester and to sleep under an insecticide treated mosquito net, b) get dewormed for hookworm in the second and third trimester.
- A single dose of vitamin A (200,000 IU) within eight weeks postpartum, irrespective of their HIV status.
- Consume iodized salt during and after pregnancy
  - Consumption of foods that are likely to reduce iodine absorption (goitrogens) should be avoided. Cassava leaves and soya should not be consumed with meals that are intended to deliver iodine requirements.

### 5.3 Actions by Service Providers

In addition to the recommendations for all PLWHA provided in the preceding chapters:

- Encourage pregnant and lactating women to use the Antenatal Clinic (ANC) / Maternal Child Health (MCH) services including compliance to micronutrient supplementation, malaria prevention, vaccinations and other adjunctive treatments. They are likely to receive the Essential Nutrition Actions for Women.
- Refer women to providers of reproductive health services where they can receive family planning services and treatment of Sexually Transmitted Illnesses. Birth spacing will provide an opportunity for stabilization of maternal nutritional between births and promote improved child care practices.
- Assist pregnant women to identify the probable causes of insufficient gestational weight gain or weight loss.
- Refer women gaining less than 1 kg body weight per month during the second and third trimesters to a health facility for immediate attention.
- Support women to consume adequate food to meet their energy, protein and micronutrient requirements. Identify factors that may limit adequate consumption of food, including the culture and belief systems on foods (e.g. food taboos and traditional therapies and practices). Stigma issues should also be discussed and addressed.
- Provide dietary counselling to women to enable them to plan meals that meet their dietary needs.
- Women who come with pale palms and inner eyelids should be assessed for anaemia and treated accordingly.

# Chapter 6

## Nutritional Care for Children Born to HIV-Infected Mothers and Children Infected with HIV

### 6.0 Introduction

Strategies to improve the nutritional status of children at risk of HIV infection, begins with the prevention of transmission of HIV to children. Service providers must work to prevent low birth weight (LBW), inappropriate feeding practices before six months of age, inadequate dietary intake during the introduction of complementary foods and prevention and care of infections, as well as address the reasons for inadequate attention to the care of a child. Further details of feeding practices to prevent and decrease transmission can be found in the Kenyan national guidelines for *Infant and Young Child Feeding in the Context and HIV and AIDS* (2004) and the *Kenya National Guidelines Prevention of Mother-to-Child HIV/AIDS Transmission (PMCT)* (2002).

### 6.1 Transmission of HIV Infection from Mother to Child

Infants can acquire HIV through mother-to-child transmission (MTCT), blood transfusion or infected blood products, and/or use of contaminated instruments. Transmission of HIV from an infected mother to her infant can occur during pregnancy or delivery, or after delivery. The risk of transmission from breast milk is about 15% for infants who are breastfed up to six months, and about 20% for children breastfed to their second year. Women who are infected with HIV or re-infected with a different strain of HIV during the breastfeeding phase have much higher risk (29%) of transmitting the virus to their child through breast milk.

If the growth of a child born to an HIV infected mother is faltering, counsel the mother or caregiver to have the child's HIV status determined. If the antibody HIV tests are used, the infection state of the baby can only be confirmed at 18 months, following clearance of maternal antibodies. However, tests for HIV antigen or the virus itself, directly or by culture, can be done earlier using PCR method if accessible and feasible.

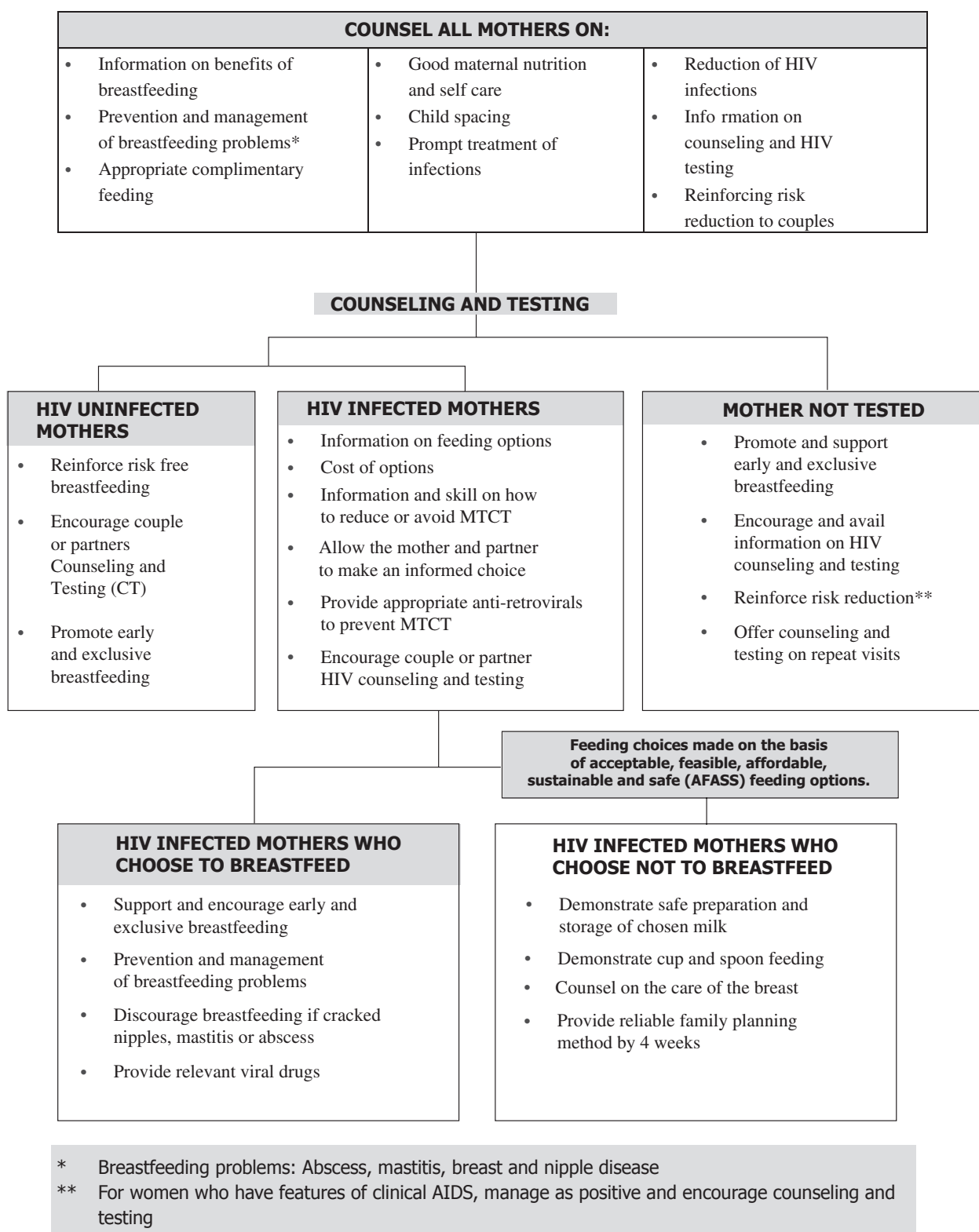
### 6.2 Feeding Infants (0-6 months) Born to HIV-Infected Mothers

- Counsel women during their last trimester of pregnancy to choose a feeding option. The Guidelines for counselling mothers during pregnancy and immediately after delivery are laid out in Figure 6.1.

"All women and men, irrespective of their HIV status, have the right to determine the course of their reproductive life and health, and to have access to information and services that allow them to protect their own and their family's health. Where the welfare of children is concerned, decisions should be made that are in keeping with **children's best interests.**"

UNAIDS/WHO/UNICEF, 1997

## Guidelines for Counselling on HIV and Infant Feeding



**Figure 6.1: Guidelines for Counselling on HIV and Infant Feeding**

### 6.2.1 Exclusive Breastfeeding

'Exclusive breastfeeding' means to give the infant no food or drink other than breast milk. WHO recommends exclusive breastfeeding for non-infected mothers. from birth to 6 months for an HIV-infected mother for whom replacement feeding is not acceptable, feasible, affordable, sustainable and safe (AFASS).

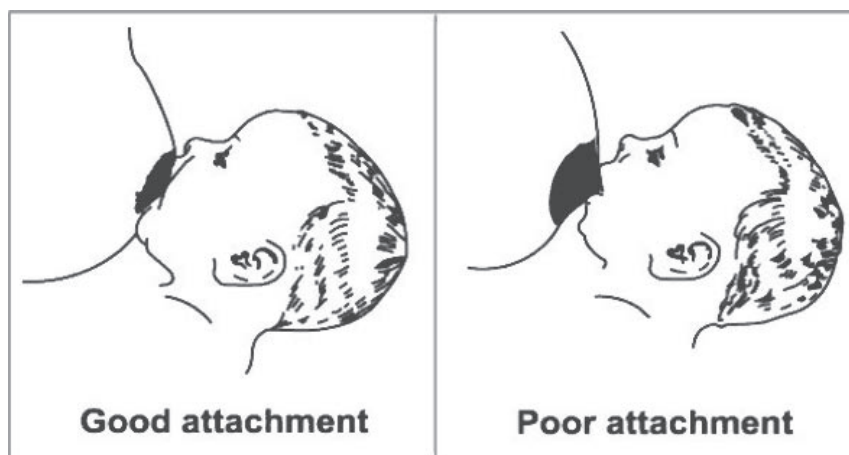
WHO recommends: "When **replacement feeding** is acceptable, feasible, affordable, sustainable and safe (AFASS), it is best that HIV-infected mothers avoid breastfeeding. When replacement feeding is not AFASS, HIV-infected mothers should practice **exclusive breastfeeding** the first months of the baby's life and discontinue as soon as AFASS replacement feeding becomes practical."

#### Actions to Support Exclusive Breastfeeding of Infants (0 - 6) Born to HIV-Infected Mothers

- For mothers who choose exclusive breastfeeding, where an alternative is not acceptable, feasible, affordable, sustainable and safe (AFASS), promote early initiation of breastfeeding (within one hour after delivery). This is healthy for the infant, and it establishes healthy feeding patterns early on.
- Make sure that mothers know the risk of mixed feeding (giving both breast milk and other feeds, including water). The risk of HIV transmission significantly increases if mixed feeding is practiced.
- Make sure that mothers know good breastfeeding techniques to avoid cracked and sore nipples. Mastitis and breast abscesses increase the risk of transmitting HIV through breast milk. Mothers should be taught by demonstration correct positioning and latch-on (Figure 6.2).
- Make sure (by demonstration) that mothers who choose to express breast milk know the technique of expressing and how to store breast milk to avoid contamination.
  - Freshly expressed breast milk can be safely left to stand at room temperature up to 8 hours.
  - Milk should be given to the infant using a spoon or cup (not with a bottle or with the hand) to avoid contamination and "nipple confusion."
  - Heat treat the expressed milk if necessary.
  - Make sure that mothers know early identification of and actions to address infant feeding or breast problems, including promptly seeking medical care if the baby is not feeding well or has mouth sores, or if the mother has breast problems.

**Heat-treating breast milk:** Mothers express their milk by hand or by using a clean pump into a clean, sealable container. Milk is rapidly brought to boil and then very rapidly cooled, for example by immersing a heating pot in a large volume of cold water. Or it can be heated at 56 - 65°C for 30 minutes and then allowed to cool. This may be useful in short term situations, such as during treatment of breast infection.

**Figure 6.2: Good and poor child attachment to the breast**



WHO/FCH/CAH/00.5

### **6.2.2 Exclusive Replacement Feeding for Those Meeting AFASS Criteria**

“Exclusive Replacement Feeding” means that breastfeeding is completely replaced with suitable breast milk substitutes (BMS) that will provide the nutrients that the infant needs. A baby who is not breastfed will need about 150 ml of milk (in one form or another) per kg of body weight per day.

Exclusive replacement feeding can use commercial baby formula or home-based animal milk.

- Prepare commercial formula according to manufacturer’s direction. Different infant feeding formulas contain macronutrients in varying amounts. Feed requirement for the first 6 months of life is about 20 kg of formula (44 tins containing 450 g each). This will cost on average Ksh 3,700 per month, or Ksh 22,000 for the 6 months period.
- Home-based formula can be made from milk from cow, goat, sheep or camel; whole powdered milk or unsweetened evaporated full cream milk; and soya-based milk. The amount of whole fresh milk required for six months is about 92 litres at a cost ranging between Kshs 2,000 and Kshs 5,000 (for the six months) depending on where it is purchased. To meet infant micronutrient needs, a multi-micronutrient formulation containing at least iron, zinc, selenium, folic acid and vitamins A, C and E should be added to the animal milk at 1 Recommended Daily Allowance levels. This costs an additional Kshs 12,000 for six months, for a total cost of between Kshs 14,000 and Kshs 17,000 for the 6 months period.
- The family must be able to support the AFASS principles which mean having adequate resources including clean safe water, fuel, utensils, skills and time to prepare replacement feeding correctly and hygienically.
- Ensure that the caregivers are aware of the need for early intervention of diarrhoeal illnesses.

### **Service Providers' Actions to Support Exclusive Replacement Feeding of Infants (0 - 6) Born to HIV-Infected Mothers**

- Do a careful assessment of a mother's capacity for AFASS before recommending exclusive replacement feeding. To consider exclusive replacement feeding requires assessment of the following support:
  - Support for mothers to provide knowledge and skills to feed infants with BMS from birth to 6 months, followed by the addition of locally-available complementary foods for the next 18 months.
  - Appropriate capacity of health care providers to counsel on infant feeding options and implement the steps of the Baby Friendly Hospital Initiative (BFHI) – refer to Kenya National Guidelines for Infant and Young Child Feeding in the Context and HIV and AIDS (2004).
  - Availability of multiple micronutrients or multivitamins for children receiving modified animal milk.
- Demonstrate the preparation of the replacement feeding option that the mother or caretaker has chosen. In the event that another milk, such as modified animal milk, has to be used, keep the following factors in mind:
  - To meet water requirements for 0 to 3 month old infants, 1 portion of water is added to 2 portions of milk. Table sugar is added to increase energy content (added to taste). The mixture is boiled and cooled before feeding the infant.
  - For 3 to 6 month old infants, 1 teaspoonful sugar (to taste) is added to a cup of whole milk. The mixture is boiled and cooled before feeding the infant.
  - For 6 month old infants and older: in addition to breast milk substitute, start the infant on weaning foods at least three times a day for infants less than 12 months old, and increased to at least five times a day for those between 12 to 24 months.

### **6.3 Feeding Children 6 Months and Older Not on Breast Milk**

After six months, breast milk and other forms of milk alone are not adequate to meet a baby's nutritional requirements. HIV-infected mothers should not breastfeed for more than six months.

Inform and support HIV-infected mothers to introduce nutrient-dense, complementary food to breast milk substitutes when the infant is six months. If there is evidence of growth faltering, the mother should introduce high-nutrient complementary food as early as four months.

For breast-fed infants, the transition from breast milk to complementary foods and breast milk substitutes (like infant formula or modified cows milk) should be as short as possible to limit mixed feeding. However, abrupt cessation should be discouraged to avoid undue traumatic effects on both the mother and the infant.

Milk should continue as an important component of the diet. It should provide up to one-half or more of the nutritional requirements for children 6 to 12 months old and up to one-third of the requirements for children aged 12 to 24 months.

Complementary foods should be made from nutrient-enriched family foods. Children between 6 to 12 months should be fed at least three times a day while those aged 12 to 24 months fed at least 5 times a day. Those aged 24 months and above should be fed with three family meals and at least two snacks a day.

Preparation of the meals should take account of the following:

- Choice of food.
- Amount of food.
- Food safety and hygiene.

## 6.4 Nutritional Care and Support of HIV-Infected Children

### Energy

**Asymptomatic:** Require 10% more energy to maintain growth than healthy children.

**Symptomatic with no weight loss:** Require 20 - 30% more energy than healthy children.

**Symptomatic with weight loss:** Require about 50 - 100% more energy than healthy children.

### Protein

Protein requirements are the same as those for an uninfected child. They should be based on an individual's symptoms and needs.

### Micronutrients

Micronutrient requirements are the same as those for an uninfected child. They should consider possible deficiencies.

The following should be considered in the nutritional care and support of HIV-infected children:

1. Periodic nutritional assessment and growth monitoring.
  - Growth is a very sensitive indicator of HIV progression in children: Poor growth normally precedes CD4 decline and the development of OIs (especially TB).
  - Weighing, charting on a health card and interpretation should be done by a trained staff member. The charting should start with the birth weight, if available. MUAC can be used where weighing tools are not available or weight measurement is not possible. (See Chapter 4).
  - In the first year, nutritional assessment is done every month in keeping with recommendation for all children. Thereafter, assessment can be done every three months. If there is growth faltering or problems with feeding, however, assessment should be done monthly.
2. Assess feeding practices and dietary intake with every contact, including dietary-related problems (e.g. poor appetite, chewing, swallowing, intolerance, food taboos and history of nutritional supplementation).

3. If the growth of a child is faltering:

- A clinician should carry out a physical examination to rule out thrush or oral ulcers, gastrointestinal bleeding, and signs of systemic infections.
- Support the mother/caregiver to ensure the child receives the adequate amount of energy, protein and micronutrients to meet increased demand. Intake should be based on locally available foods. Children should also receive universal vitamin supplementation and targeted multiple micronutrient supplementation, which include iron, if there are no contraindications.
  - Delay oral iron supplementation until the child regains appetite and starts to gain weight (usually after two weeks).

All children, including the HIV exposed and infected, should receive vitamin A, presumptive de-worming, and all vaccines according to the national schedule for children. It is also recommended that HIV-infected children are given a suitable multi-micronutrient supplement daily at one Recommended Daily Allowance.

4. If the child is losing or has lost LBM, it is possible he/she is having symptoms of AIDS.

Take the following actions:

- Provide oral nutritional supplementation. If this is not possible, enteral and parenteral alimentation feeding option should be considered.
- Refer the child for ARV assessment and recruitment to the treatment program, if they meet the national criteria.

## 6.5 Nutritional Care for Severely Malnourished HIV-Infected Children

All other factors being equal, severely malnourished HIV-infected children under 5 years of age are about five times more likely to die than uninfected children; with children under two years old being most at risk.

The following are common features of severe malnutrition:

- Visible, severe wasting in the trunk and buttocks. The child looks thin and the skin sags.
- Possible swelling of both feet (oedema: when pressed gently with a finger, a depression forms and skin does not rebound).
- Possible pallor of the palms and mucus membranes due to anaemia: the child will appear pale; the insides of the mouth and the eyelids will be white.
- Weight-for-height of less than -3 Z score of NCHS, or weight Child Health Card below the minimum growth curve line.

The child may also present with the following complications:

- Hypothermia: low body temperature (below 35° C).
- Dehydration with or without diarrhoea.
- Hypoglycaemia or low sugar.
- Micronutrient deficiency, especially vitamin A or iron.

- Other infections such as TB, gastrointestinal tract infections, acute respiratory infections.
- Poor appetite and malabsorption of food.

Nutritional rehabilitation should be done by qualified staff (i.e. trained in severe childhood malnutrition rehabilitation), especially fitting naso-gastric tubes and parenteral nutrition. The rehabilitation diet should provide 150 to 200 Kcal/kg and 3 - 4 g protein/kg body weight per day. This diet should consist of a high protein and high energy preparation in semi-solid form to provide 2.5 - 3 g protein/100 ml and 1 - 1.5 Kcal/ml respectively.

## 6.6 Actions by Service Providers

- Keep the child warm.
- Assess for dehydration and ensure hydration. Hydrate done orally unless the child has signs of impending shock, then an intravenous transfusion (IV) can be used. Oral hydration should have less sodium and slightly higher potassium than the WHO re-hydration salt or cereal based solutions.
- If there is reasonable belief of a threat of hypoglycaemia, prevent or treat it.
- Initiate micronutrient supplementation appropriately. Iron supplementation should not be done during stabilization phase, but after the child has regained appetite.
- Evaluate and treat any infections. Broad-spectrum antibiotic therapy is provided for the first seven days of admission.
- If the child is asymptomatic, provide 20 to 30% more energy than for an uninfected child. If the child is symptomatic, provide 50 to 100% increase in energy. The protein and micronutrient levels remain the same as for a child who is uninfected.
- Make sure mothers/caretakers know the importance of urgently seeking help from a health facility.
- Explain to mothers/caretakers how important it is to: rehabilitate the child's nutrition with frequent feeds of nutritionist-recommended energy and nutrient-dense foods; stimulate the child with play in order to maintain appetite and foster the child's development; and carry out regular follow-up after discharge.
- Mothers/caretakers must know the importance of taking children for growth monitoring and seeking health care and support.
- Refer severely malnourished children with HIV/AIDS who are not on ARVs to providers of antiretroviral therapy services.

HIV exposed or infected children with weight-for-height of less than -3 Z scores should be provided with institutional nutritional management for at least seven days and supported with ready to use therapeutic food for not less than a month